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3 March 2010

Board of Building Regulations and Standards
Commonwealth of Massachusetts
One Ashburton Place – Room 1301
Boston, MA 02108

RE: 8th Edition of the Massachusetts State Building Code

We the undersigned are the presidents of the Structural Engineers Association of Massachusetts (SEAMass) and the Boston Association of Structural Engineers (BASE), respectively. SEAMass is an organization of individual structural engineers in Massachusetts; BASE is an organization of structural engineering firms that are primarily involved in the structural engineering design of buildings.

A number of our members attended the public hearing on the 8th Edition of the State Building Code (SBC) on February 9, 2010 and gave testimony on independent structural engineering review (structural peer review) and on the structural requirements for existing buildings (Section 3408 and how it compares with the IEBC). The following is the position of SEAMass and BASE on these issues as well as on quality assurance during construction (Chapter 17).

Independent Structural Engineering Review (Structural Peer Review)

Members of SEAMass and BASE attended the BBRS meeting on October 7, 2009, when the Loads Advisory Committee of BBRS (LAC) and the other advisory committees presented their recommendations to the Board for the 8th Edition of the Code. When the chairman of LAC, Rubin Zallen, presented these recommendations, he spoke about the structural peer review program, which has been in the Code for approximately 25 years, as well as on the necessity of continuing the program. At the time, no Board member questioned Mr. Zallen or made any comment on structural peer review.

It was with great surprise that we noted the emasculation of the peer review program in the proposal by the Board for the 8th Edition that was published for the public hearing. No member of the Board or anyone else has come forward as a proponent of this change, and we do not know what reasons the Board may have for this proposed change.

SEAMass and BASE are strongly opposed to the peer review proposal by the Board, and recommend that the proposal by the LAC dated 9-30-09, be substituted for that of the Board's proposal.

Our reasons are enumerated as follows:

- The current (7th Ed) peer review program has effectively been in place since the early 1970s, first in the City of Boston, and then in the middle 1980s in the State Building Code. From our collective knowledge, it has been a successful program and has prevented many failures and structural problems over the years. The program proposed by the Board would severely curtail peer reviews and greatly compromise public safety. Further, the Board's proposal has no criteria for conducting reviews and reporting to the building official.
- The independent reviews guard against major errors in concept and design of the primary structure.
- Most building departments do not have the engineering capability of reviewing structural designs. Other work, such as means of egress, height and area requirements, fire protective assemblies, plumbing, electrical, and sprinklers, usually received careful review by the building department and/or the fire department.
- Many structural designs are not properly checked in house due to time pressures, schedule, or inadequate fees.
- Independent reviews overcome errors that are not obvious to a firm's personnel due to their particular culture and how designs are performed and checked in house.
- It has been documented that due to the complexity of the newer building codes, there are more design errors. It has been our experience and knowledge that the Peer Review process has been a good mechanism to catch these potential errors, especially when code editions have changed or are updated.
- Contemporary computer programs in the hands of inexperienced engineers can produce dangerous results that are often not caught, though the design "appears" to look good on paper.

Particularly, we recommend that Section 105.9 of the Board's proposal for the 8th Edition be deleted and the following be substituted:

105.9 Independent Structural Engineering Review. An independent structural engineering review of structural design shall be performed in accordance with the requirements of Appendix 120.U. Said review and a report thereon is a condition for the issuance of a building permit.

Appendix 120.U was submitted by LAC for the 8th Edition on 9-30-09 and presented to the Board on 10-7-09. We fully support this appendix, which includes specific and proven criteria for conducting reviews and reporting to the building official. However, we recommend that Section 120U.A.1 be modified as follows:

1. At the end of Clause 3, add ", and structures classified as Occupancy Category IV in Table 1604.5 of IBC 2009."
2. In Clauses 2, 4, and 5, change "400,000 cubic feet" to "200,000 cubic feet."

The reasons for the proposed changes are that Occupancy Category IV structures, which are essential facilities that need to be operational after a disaster, should have special attention, and that we, collectively, have observed many problems in buildings smaller than 400,000 cubic feet.

Section 3408 and Comparison with the IIBC

We take note that the LAC proposal for the 8th Edition, Structural Requirements for Existing Buildings, contained in Appendix 120.XC, dated 9-30-09, and presented to the Board on 10-7-09, was not part of the Board's proposed Chapter 34 for the 8th Edition. Rather, Chapter 34 of the 7th Edition as it was first issued was used. This earlier issue contains many errors and does not include the changes voted on by the Board since it was first issued.

SEAMass and BASE collectively recommend that the LAC proposal for the 8th Edition, contained in Appendix 120.XC, be substituted for Chapter 34 of the Board's proposal (globally changing the "120 XC" to "3408").

When the Board adopted the 3C proposal for the 7th Edition, it eliminated triggers for Level 2 Work in 3408.4.3 for 1) change of use, and 2) for non-structural work for Pre-1975 buildings, a sweeping diminishing effect to the requirements for Level 2 Work. The LAC proposal partially restores these triggers in 120.XC.4.3. In Clause 1, it restores the trigger for change of use. In Clause 2, it restores the trigger for nonstructural work for unoccupied buildings. SEAMass and BASE strongly and collectively recommend these changes in order to improve public safety and to provide these buildings with a minimum lateral load resistance. There is no plausible reason to not make these corrections.

Both writers are actively participating in Mike Guigli's structural advisory committee to amend IIBC 2009 so that it could be used in Massachusetts in lieu of the current 3408. It is our opinion and the opinion of many other structural engineers that IIBC 2009 without extensive amendments is not a workable code with respect to the structural requirements for existing buildings.¹ Further, having seen first hand, through our participation, the unreasonable triggers and the unreasonable requirements of the IIBC, and the lack of any minimum lateral load resistance for some of the intermediate levels of work, we believe that it will take about 18 months of continuous committee work to amend the IIBC before it will be a workable and acceptable document from both the standpoints of public safety and economics.

Thus, SEAMass and BASE jointly recommend that the Board abandon the notion that an amended IIBC could be substituted for 3408 in the time frame that has been allocated to this ambitious endeavor. It would be a serious detriment to public safety to the economics of renovating existing structures to make such a substitution prematurely, and without vetting it thoroughly in the structural engineering community that we represent. Further, we understand that the structural advisory committee will perform numerous example studies for each anticipated type of building renovation in order to compare the IIBC Code requirements to 3408, and to determine the implications to both

¹ See for example, the letter from Rubin M. Zallen, P.E. to the Chairman of BBRS, Arthur MacLeod dated 8-7-09, in which Mr. Zallen compares IIBC 2009 to Section 3408 of the 7th Edition of the Code. An expounding of this comparison will follow this letter under separate cover.

public safety and to economics. This is a necessary part of the Code adoption process and will take some time.

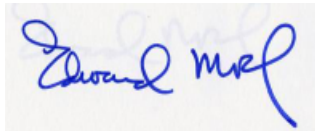
Chapter 17 - Quality Assurance During Construction

We note that the Board included Chapter 17 of the 7th Edition in its proposal for the 8th Edition. We are also aware that the Board would like to substitute the IBC 2009 Chapter 17, if it could find a way to do so. In this regard, SEAMass and BASE jointly take the same position as the LAC in its submission dated 9-30-10 and that was presented to the Board on 10-7-10. We quote the LAC as follows:

We recommend that the current 7th Edition Quality Assurance regimen be maintained until such time as the BBRS can provide an infrastructure for assessing the qualifications of special inspectors and testing laboratories (other than those for concrete), licensing or certifying them, and providing the necessary training for the building inspectors.

If you should require further clarification of our two organization's positions on these matters, please do not hesitate to contact one or both of us.

Very Truly Yours,



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